

**REMARKS**

This amendment is in response to the Final Office Action dated November 30, 2000.

Claims 1 through 39 are currently pending in the application, standing rejected.

With amendment of claims as provided hereinabove, and further in view of the arguments made hereinafter, the Applicant contends that claims 1 through 39 are in condition for allowance and the same is respectfully requested.

**35 U.S.C. § 102(b) Anticipation Rejections**

**Anticipation Rejection Based on United States Patent 5,606,199 to Yoshigai**

Claims 1, 7, 12-14, 20, 25 through 27, 33, 38, and 39 were rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent 5,606,199, issued to Yoshigai (hereinafter "the Yoshigai reference"). Applicant respectfully traverses this rejection.

Applicant submits that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The Yoshigai reference does not contain the detail that is contained in the presently amended claims.

The current application contains presently amended independent claims 1, 14 and 27 which all include the limitation that the paddle in the invention is attached to a side rail "by at least a plurality of paddle support bars and is further attached to a plurality of cross members by said support bars." This allows for precise positioning of the semiconductor device and makes it easier to insert and remove the semiconductor device.

The Yoshigai reference teaches an island 7, with a central recess 7a as a chip support section in which the semiconductor chip 4 is mounted. The Yoshigai reference fails to include the frame which includes the side rails, cross members and paddle which is attached to the side rails by paddle support bars and to cross members by paddle support bars that is described in the

present set of independent claims. Thus, the Yoshigai reference fails to teach the enhancement of the ease of device handling that is taught in the present invention. Additionally, the Yoshigai reference fails to show conductive projections 34 such as solder bumps or balls are formed on the bond pads 32. Therefore, the Yoshigai reference fails to anticipate the present invention because it fails to teach every aspect of the amended claims of the present invention.

Because the Yoshigai reference fails to anticipate the presently claimed invention of independent claims 1, 14, and 27, Applicant requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) and dependent claims 7, 12, 13, 20, 25, 26, 33, 38, and 39 therefrom.

### **35 U.S.C. § 103(a) Obviousness Rejections**

#### **Obviousness Rejection Based on United States Patent 5,606,199 to Yoshigai in View of Applicant's Admitted Art**

Claims 2 through 6, 8 through 11, 15 through 19, 21 through 24, 28 through 32, and 34 through 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yoshigai reference in view of the applicant's admitted prior art.

Applicant submits that the combination of these references does not teach or suggest the presently claimed invention.

The Office Action states that although the Yoshigai patent does not explicitly teach the product of claims 2 through 6, 8 through 11, 15 through 19, 21 through 24, 28 through 32, and 34 through 37, but that the Applicant's own application allegedly teaches that the product would be well known. Furthermore, the Office Action purports that it would have been obvious to combine the known products with the product of Yoshigai because it would facilitate connection of the die to the circuit substrate and the paddle.

The Applicant submits that the instant invention is not taught or suggested in the prior art. Applicant submits that a reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. Bausch & Lomb, Inc. v. BarnesHind/Hydrocurve, Inc., 230 USPQ 416 (Fed. Cir. 1986). The prior art references cited by

the Examiner "would likely *discourage* the art worker from attempting the substitution suggested by [the applicant]." Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923 (Fed. Cir. 1990). The fact that the applicant achieved the claimed invention by doing what those skilled in the art had suggested should not be done is a fact strongly probative of nonobviousness. Kloster Speedsteel AB v. Crucible Inc., 230 USPQ 81 (Fed. Cir. 1986), on rehearing, 231 USPQ 160 (Fed. Cir. 1986). Additionally, "it is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teaching of the prior art so that the claimed invention is rendered obvious . . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fritch, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992).

Furthermore, Applicant submits that a *prima facie* case of obviousness has not established under 35 U.S.C. § 103. To establish a *prima facie* case of obviousness under 35 U.S.C. §103, the following criteria must be met:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The Applicant respectfully disagrees with the Office Action's assessment of the Yoshigai reference. The Yoshigai reference fails to show conductive projections 34 such as solder bumps or balls are formed on the bond pads 32. In the present invention these projections enabling "gang" bonding, i.e. flip-chip bonding, of the semiconductor die bond pads to the conductive traces 46 of a substrate 42 such as a circuit board. Furthermore, the presently amended claims teach a semiconductor device assembly, comprising a semiconductor die having an active surface having a plurality of bond pads and an opposing second surface with at least one projection connected to at least one bond pad of said plurality of bond pads on the active surface of said

semiconductor die wherein the projection includes at least one solder ball and at least one solder bump. The invention also teaches a generally centrally positioned paddle of a lead frame of a plurality of lead frames having side rails and cross members connected to said paddle, wherein the generally centrally positioned paddle which is attached to the side rail by a paddle support bar and is further attached to a cross members by the support bar. This is also not taught or suggested by the Yoshigai reference nor the Applicant's admitted prior art. Thus, there is no motivation to combine the Yoshigai reference with any of the Applicant's admitted prior art.

Therefore, the cited prior art, whether taken separately or whether combined as proposed in the proposed rejection, fails to establish a *prima facie* case of obviousness for the present invention as proposed to be claimed in claims 2 through 6, 8 through 11, 15 through 19, 21 through 24, 28 through 32, and 34 through 37. Thus, the Applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 regarding claims 2 through 6, 8 through 11, 15 through 19, 21 through 24, 28 through 32, and 34 through 37 and the case be allowed for issuance.

**ENTRY OF AMENDMENTS**

Applicant requests entry of this amendment for the following reasons:

The amendment clearly places the application in condition for allowance.

The amendment does not require further search and consideration by the Examiner.

The amendment is timely filed.

The amendment reduces the number of issues for any subsequent appeal.

The amendment clearly complies with the provisions of 35 U.S.C. § 132 as no new matter has been added to the application.

**CONCLUSION**

In view of the amendments and remarks presented herein, Applicant respectfully submits that the presently amended claims clearly distinguish the presently claimed invention from the cited prior art. Applicant requests entry of this amendment, allowance of all pending claims, and the case passed for issue.

If questions should remain after consideration of the foregoing, the Examiner is kindly requested to contact applicants' attorney at the address or telephone number given herein.

Respectfully submitted,



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